

US EPA RECORDS CENTER REGION 5



466411

Monthly Oversight Report 63
44728 AES [46526 RAC]
ACS NPL Site
Griffith, Indiana
March 4, 2006 – March 31, 2006



BLACK & VEATCH

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Black & Veatch Special Projects Corp.

USEPA/AES
American Chemical Service, Inc. RAO (0057-ROBE-05J7)

BVSPC Project 44728
BVSPC File C.3
April 14, 2006

Mr. Kevin Adler
U.S. Environmental Protection Agency
77 W. Jackson Boulevard (SR-6J)
Chicago, Illinois 60604-3590

Subject: Monthly Oversight Summary Report
No. 63 for March 2006

Dear Mr. Adler:

Enclosed is the Monthly Oversight Summary Report No. 63 for March 2006 for the American Chemical Service, Inc. Superfund Site in Griffith, Indiana.

If you have any questions, please call (312-683-7856) or email (campbelllm@bv.com).

Sincerely,

BLACK & VEATCH Special Projects Corp.

Larry M. Campbell, P.E.
Site Manager

Enclosure

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Monthly Oversight Summary Report No. 63
ACS Superfund Site
TO 057, 44728.238 (AES) [WA57, 46526.238 (RAC)]

Reporting Period: Month of March (March 4 – March 31, 2006)

BVSPC O/S Dates: March 15, 21, 23, and 28, 2006 (Mr. Campbell)

Personnel Summary Affiliation	No. of Personnel	Responsibility
Montgomery Watson Harza	3	Respondent's General Contractor
U.S. Environmental Protection Agency	1	Federal Regulatory Agency
Black & Veatch Special Projects Corp.	1	USEPA Oversight Contractor
Austgen	1	General Contractor
Microbac	1	GWTP Sampling Contractor

Construction Activities

Major Activities:

- Montgomery Watson Harza continued operating the groundwater treatment plant, the in-situ soil vapor extraction systems, and the air sparge systems.
- Montgomery Watson Harza conducted the semiannual groundwater sampling program at the site, sampling 36 wells.
- Montgomery Watson Harza pumped product from well DPE-53.
- Microbac collected samples from the groundwater treatment plant for routine process monitoring.
- Montgomery Watson Harza held an operation and maintenance meeting on March 10.

Activities Performed:

Montgomery Watson Harza (MWH) reported (April 5) that the groundwater treatment plant (GWTP) was operational 92% of the time (772 of 840 hours) in March (February 24–March 31), processing 1,379,467 gallons of groundwater at average rates of 25 to 40 gpm. MWH reported that groundwater was pumped to the plant from all trench and well sources. Microbac collected samples from the GWTP for routine process monitoring.

MWH reported that the GWTP was shut down for a few hours on March 15 in order to install new influent piping to the equalization tank T-102, replacing the piping that had been partially clogged. MWH reported that the water level sensor failed in equalization tank T-102 on March 16, allowing

tank T-102 to overflow onto the ground within the HDPE-lined enclosure. This overflow (approximately 300 gallons) was pumped back into the biotank. MWH lowered the water level in tank T-102 and operated the GWTP manually over the weekend until a new sensor was obtained and installed on Tuesday March 21, after which the plant was returned to automatic operation. Accordingly, the GWTP did not operate for a few hours each day while it was being manually operated.

MWH continued to operate the On-Site Containment Area (ONCA) Still Bottoms Pond Area (SBPA) and Off-Site Containment Area (OFCA) in-situ soil vapor extraction (ISVE) systems and the OFCA and SBPA air sparge systems, processing vapors through thermal oxidizer units 1 and 2 (thermox 1 and 2). MWH reported that it conducted the monthly compliance sampling of thermox 1 and 2 on March 6.

MWH reported that thermox 1 operated for 89% of the time (747 of the 840 hours) in March, processing 1,000 cfm of vapors from the ONCA SBPA ISVE system, collecting vapors from the same 29 (of the total 46) ISVE wells that have been used during previous reporting periods.

MWH reported that thermox 1 was shut down on March 6 to repair a leak in the ducting between the oxidizer and the scrubber. The damaged section of the 18-inch-diameter ducting was removed, transported to Vidimos for specialized welding repair, and reinstalled on March 8. During this period, MWH removed the motor for the combustion blower for thermox 1 and had it serviced. Thermox 1 was restarted on March 9, and the SBPA ISVE system brought back online on March 10.

MWH reported that thermox 2 operated for 92% of the time (771 of the 840 hours) in March, processing 2,000 cfm of vapors collected from all 42 OFCA ISVE wells and aeration tank T-102.

MWH reported repairing a minor caustic leak in thermox 2 on March 15. MWH reported that thermox 2 stopped operating on March 24 because a flexible hose connecting the heat exchanger in tank T-2 ruptured. Thermox 2 was restarted on March 25, but water was not circulated through the heat exchanger in tank T-2. MWH reported that the flexible hose was repaired but the heat exchanger was not restarted since the outside temperature is increasing and additional heating of water for the biotank will not be needed until next fall.

Observed MWH conduct system monitoring of both the SBPA and OFCA ISVE systems on March 15.

MWH reported that it pumped 63 gallons (40, 22, and 1 gallons) of free product from ISVE well SVE-53 in the SBPA (on March 8, 16, and 23, respectively). MWH reported that it planned to continue pumping from SVE-53 for 5 to 6 continuous hours during the next week and then move the pump to wells SVE-72 and SVE-65 to continue testing the product recovery from these wells. Product was collected in a drum at the surface and transported to the GWTP and transferred to oil holding tank T-6.

Because well DPE-61 consistently produced more than 20 gallons of product each week during December, MWH reported that it had installed a dedicated pneumatic pump in well DPE-61 in

February. Effluent from this dual-phase pump is processed the same as the effluent from other dual-phase pumps and is conveyed to and treated at the GWTP.

However, because of the previously documented low production of only 1 to 2 gallons of product per well per week, MWH discontinued monthly pumping from four other ISVE wells (SVE-52, -62, -72, and -88) that contained product. Product levels in these wells will be monitored, and product will be removed as necessary.

MWH reported that in early March, air was being injected through Group 1 of five wells (SVE-50, -54, -73, -79, and -81), each flowing at about 20 cfm. MWH reported that air injection was switched to Group 2 wells (SVE-40, -51, -65, -71, and -82) on March 15. MWH reported that air will be injected using this Group 2 set of wells through March and mid April, after which air will be injected using a third group of five wells.

MWH reported that it had measured water levels in all monitoring locations on March 20 as part of the semiannual groundwater monitoring plan.

Observed MWH purging and sampling groundwater from monitoring wells. During the period March 21-28, MWH collected groundwater samples from 36 wells, including 28 monitoring wells stipulated in the Revised Long-Term Groundwater Monitoring Plan (12 upper aquifer and 16 lower aquifer monitoring wells), 4 lower aquifer wells in the vicinity of the lower aquifer pump test, and 4 additional wells in the vicinity of the south area groundwater plume where chemical oxidation (chemox) injections have been made. All wells were sampled for volatile organic compounds (VOCs). Eight wells near the south area plume were also sampled for monitored natural attenuation (MNA) parameters.

MWH reported that blower ME-102 (that provides air to the activated sludge tank and is enclosed in a noise-suppression housing) had failed last year and that it had ordered a new blower and motor. They were delivered in March and will be installed in early April. In the meantime, air is being supplied to the activated sludge tank using blower ME-103, but the noise-suppression housing has not been relocated to cover ME-103.

MWH reported that it had informed Mr. Howard Anderson (local resident who had filed a noise complaint) that ME-103 was running without the noise-suppression housing. Mr. Anderson reported that he had noticed the increased noise level.

MWH reported that ACS had not reported a recurrence of odors in its break room on the SBPA.

MWH reported that ACS had requested copies of documentation related to shipments of hazardous materials from the site by MWH. MWH provided the requested documentation.

MWH reported that it plans to replace the main 30 HP piston air compressor at the GWTP with a 40 HP rotary screw air compressor in April.

MWH reported that it plans to replace the existing two 20,000 pound granular activated carbon (GAC) tanks with two new smaller tanks holding only 3,000 pounds each of GAC. MWH reported

that less carbon is now needed to treat the contaminated groundwater since construction and operation of the biotank.

MWH reported that replacement of the air compressor and GAC tanks will require close coordination inasmuch as the existing GAC tanks must be removed in order to remove and replace the air compressor.

MWH conducted an operations and maintenance (O&M) meeting at its Chicago office on March 10. BVSPC attended this meeting.

Because of the lack of field activity, weekly reports are not attached. Weekly reports will be prepared in the future if there are sufficient field activities to warrant such reporting. However, correspondence, log book notes, and photographs of the daily activities are attached. BVSPC conducted oversight of the field activities on March 15, 21, 23, and 28.

Topics of Concern: None

Concern Resolution: None

Upcoming Activities:

- MWH to continue operating the GWTP and the OFCA and ONCA SBPA ISVE and air sparge systems.
- MWH to continue operating Group 2 air injection wells in the SBPA.
- MWH to monitor odors in the ACS break room.
- MWH to continue pumping product from selected ONCA SBPA dual phase extraction wells.
- MWH, ISOTEC, and PSA Environmental will conduct 4th full scale in-situ chemical oxidation (ISCO) injections in April.
- MWH will remove the GAC, remove the large GAC tanks, and install smaller GAC tanks in April.
- MWH will remove the existing air compressor and install a replacement air compressor in May.
- MWH will host the Griffith volunteer fire department on April 25 for their annual tour of the GWTP and description of operations at ACS site.
- MWH will conduct a health and safety meeting with contractors before starting ISCO and tank removal operations, and will conduct daily tailgate safety meetings during the course of such work.
- MWH will continue construction coordination meetings at the site when field activities warrant such meetings.
- MWH will continue monthly O&M meetings to report on operation of active treatment systems.

Signature: Larry Campbell

Date: April 13, 2006

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**SITE STATUS MEETING MINUTES
FOR MARCH 10, 2006 MEETING
AMERICAN CHEMICAL SERVICE, NPL SITE
GRIFFITH, INDIANA**

MEETING DATE: Friday, March 10, 2006

MEETING TIME: 10:00 a.m.

MEETING LOCATION: MWH Chicago Office

ATTENDEES: Kevin Adler – U.S. EPA (via phone)
Larry Campbell – Black & Veatch
Prabhakar Kasarabada – IDEM (via phone)
Chris Daly – MWH
Justin Finger - MWH
Lee Orosz – MWH (via phone)
Jon Pohl - MWH
David Powers - MWH
Peter Vagt – MWH

TOPICS:

SITE STATUS

General Site Health and Safety

There have been no health and safety incidents since the last meeting held on February 9th. On March 6, 2006, a hole developed in the ductwork between Thermal Oxidizer 1 (ThermOx 1) and its scrubber. A lift was required to remove the duct. Work on ThermOx 1 was completed Wednesday, March 8th. The work was performed safely and without any incidents. Tailgate safety meetings were performed prior to beginning activities associated with the treatment plant maintenance and ThermOx 1 repairs.

Groundwater Treatment Plant (GWTP) Status

The GWTP ran 99 percent from January 27 to February 24 (666 out of 672 hours). Blower ME-103 is still operating in place of blower ME-102 which malfunctioned in November 2005. A new blower has been ordered and is scheduled to be installed in approximately two weeks.

MWH is in the process of evaluating air compressors to replace the main air compressor at the GWTP. The existing air compressor is aging and has required increased maintenance. The proposed compressor will be 40 horsepower (hp) instead of the current 30-hp compressor, and is anticipated to be installed in late April 2006.

MWH is also evaluating alternatives to the existing carbon vessels. Small holes have developed in the existing units. The proposed carbon vessels will hold only 6,000 pounds

of carbon instead of 20,000 pounds that the current vessels hold. Much less carbon is currently needed due to the addition of the bio-treatment phase in the GWTP. Because the new units are much smaller, they will eliminate the health and safety concerns (elevated work, confined space entry, pressurizing tanks, etc.) associated with the change-out process. Since the new compressor cannot be installed with the current carbon vessels, the new carbon vessels are anticipated to be installed in late April at the same time as the new compressor.

Off-Site Area/SBPA ISVE Systems

Both the SBPA ISVE system and the Off-Site ISVE system were operational 100 percent of the time from January 27 to February 24 (672 out of 672 hours).

ThermOx 1 was shut down on the afternoon of March 6th after a hole developed in the ducting between the oxidizer and the scrubber. The hole developed at the location of a weld on the uppermost of three sections of 18-inch ducting. On Tuesday, March 7th, the section of damaged ducting was removed. The other sections of ducting were examined during this time and found to be in satisfactory condition. The damaged section was then sent to Vidimos where it was cleaned and re-welded. At the same time, the motor for the combustion blower for ThermOx 1 was removed on March 7th and sent to Mills Electric for servicing. The repaired section of ducting along with the repaired combustion blower motor were reinstalled on Wednesday, March 8th. The oxidizer was turned on Thursday, March 9th. The SVE system was brought online on Friday, March 10th.

ThermOx 2 has operated nominally during the past month. A minor caustic leak was repaired on the unit during the week of February 28th.

Five air injection wells are currently running at the ACS facility (SVE-50, SVE-54, SVE-73, SVE-79, and SVE-81). MWH plans to rotate the air injection between three groups of five wells on a monthly basis. In general, when a well is not operating as an air injection well, it will be switched to operate as a vapor extraction well. On March 15th, MWH will be performing ISVE system monitoring, and at that time air injection operation will switch from Well Group 1 to Well Group 2 (SVE-49, SVE-51, SVE-65, SVE-71, and SVE-82).

Free Product Removal

Free product removal activities were conducted for five consecutive weeks, beginning the week of December 5th in six wells (SVE-52, SVE-53, SVE-62, SVE-72, SVE-88, and DPE-61). During this time, DPE-61 has consistently produced high recovery rates of a water and product mixture. Due to these high recovery rates and the low viscosity of the liquid, a pneumatic pump (typical of the dual-phase extraction wells) will be permanently installed in the well. This pump, which is linked to the extraction system, will automatically begin pumping as the well recharges with the water and product mixture. A temporary air-driven pump was inserted into well SVE-53 during the week of February 20th. The pump has been running for three weeks to evaluate the recovery rates of this well. The pump ran for five to six continuous hours once a week for the three weeks. During this time, decreases in the static water/product level in the well was observed. Pumping will be extended for an additional two weeks to further monitor the

water/product level and recovery rates. Based on this data, MWH will then evaluate the cost-effectiveness of installing a dedicated pump in this well. After the evaluation of well SVE-53, pumping will commence in SVE-72 to conduct a similar evaluation. Once SVE-72 has been evaluated, the air-driven pump will be installed in well SVE-65. The pump will remain in this well indefinitely and will run five or six continuous hours each week. Liquid levels at SVE-52, SVE-62, and SVE-88 will continue to be measured; however, at this time, product removal at these locations will be performed only as needed.

Interaction with ACS Facility and Community

ACS personnel have requested records of all hazardous waste shipped off the site by MWH. As has been done in the past, MWH has complied by providing the requested information.

On April 25, 2006, the Griffith Fire Department will be performing their annual tour of the ACS facility. The tour will focus on safety hazards and confined spaces on the site. Due to the malfunction of Blower ME-102 at the GWTP, a replacement blower has been ordered and is anticipated to be installed in March 2006. Blower ME-103 will be operated in the interim. Unlike Blower ME-102, Blower ME-103 is not housed in a blower shed. MWH has contacted Howard Anderson (local resident who previously had commented on excessive noise at the GWTP) on February 14th and informed him of the blower breakdown. MWH will inform Mr. Anderson of the anticipated schedule for installation.

Current Issues

The March groundwater sampling event is scheduled to begin on Monday, March 20, 2006. It is expected to run through March 29th. Only monitoring wells will be sampled during this event.

The fourth round of chemical oxidation injections is scheduled to run from April 3rd through April 13th. The work will be performed by PSA Environmental and Isotec. In the event that the work is not completed by April 13th, Isotec will demobilize and resume work on April 18th. In response to comments received from the Black & Veatch and the EPA, an additional 23 points have been added in the northern part of Colfax Street. An updated map of chemical oxidation points showing these additional 23 points is included with these meeting minutes. Safety concerns include work that is to be performed in the roadway along Colfax Avenue. Walsh & Kelly will once again be contracted to assist with traffic control.

Due to traffic safety concerns associated with the chemical oxidation event, MWH has contacted the Griffith Police Department to inquire about the possibility of having police presence on site. The department can not make a squad car available full-time. However, if traffic conditions are observed to be considerably dangerous, MWH will contact the department and a squad car will then be sent over. MWH will emphasize the need for awareness regarding traffic safety throughout the event during the morning tailgate safety meetings.

LOOK AHEAD

Field Events

- SBPA ISVE System Monitoring – March 15th
- March Groundwater Sampling Event – March 20-29th
- Fourth Round of Chemical Oxidation Injections – April 3-13th

Reports

- RTCs for SBPA ISVE System Upgrades Startup Memo – March 2006
- Active Treatment Systems Quarterly Report, 3rd Quarter 2005 – March 2006
- Active Treatment Systems Quarterly Report, 4th Quarter 2005 – April 2006
- Lower Aquifer Investigation Report – April 2006

Health & Safety Look Ahead

- In late March, MWH will be hosting the Griffith Fire Department for their annual facility inspection and orientation.
- Proper precautions should be taken to avoid slips, trips, falls, and vehicle hazards associated with the muddy conditions.
- Appropriate PPE should be worn and appropriate procedures should be followed while performing product removal activities.
- Appropriate PPE should be worn and appropriate procedures should be followed while performing the March Groundwater Sampling Event.
- Appropriate PPE should be worn and appropriate procedures should be followed while performing chemical oxidation injection work, especially on and near the road.
- Proper precautions should be taken during the change-out of Blower ME-102.

Future Meetings

Monthly Site Status Meeting – Friday, April 7, 2006, 10 a.m. at the ACS site.

JEF/CAD/PJV

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Remedial Progress Report	April-06	Report Date: 4/5/2006																																										
GWTP & Dewatering																																												
The GWTP was operational for 772 hours out of 840 (92%) from Feb 24 to Mar 31 Total Gallons treated = 1,379,467 gallons since 2/24/06 (35 days)		<u>Tables, Graphs & Figures</u> Table - Effluent Summary Graphs - Off-Site Dewatering Graphs - SBPA Dewatering																																										
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Data presented here is for informational purposes only. Not all data presented in this report has been validated.																																												

Table
Summary of Effluent Analytical Results
Groundwater Treatment System
American Chemical Service NPL Site
Griffith, Indiana

Event Date	Month 104 1/11/2006	Month 105 2/7/2006	Month 106 3/8/2006	Effluent Limits	Lab Reporting Limits
pH	7.48 /J	7.5 /J	7.75	6-9	none
TSS	0.3 B	NS	NS	30	10
BOD		NS	NS	30	2
Arsenic	4.7 B	NS	NS	50	3.4
Beryllium	0.30 B/B	NS	NS	NE	0.2
Cadmium	ND	NS	NS	4.1	0.3
Manganese	1.4 B/B	NS	NS	NE	10
Mercury	ND	NS	NS	0.02 (w/DL = 0.64)	0.64
Selenium	ND	NS	NS	8.2	4.3
Thallium	ND	NS	NS	NE	5.7
Zinc	ND	NS	NS	411	1.2
Benzene	0.10 J/	0.50 U	0.50 U	5	0.5
Acetone	2.5 U/UJ	2.2 JB	2.5 U	6,800	3
2-Butanone	2.5 U/UJ	2.5 U/UJ	2.5 U	210	3
Chloromethane	0.50 U/	0.50 U	0.50 U	NE	0.5
1,4-Dichlorobenzene	0.50 U/	0.50 U	0.50 U	NE	0.5
1,1-Dichloroethane	0.50 U/	0.50 U	0.50 U	NE	0.5
cis-1,2-Dichloroethene	0.69 /	0.43 J	0.50 U	70	0.5
Ethylbenzene	0.50 U/	0.50 U	0.50 U	34	0.5
Methylene chloride	1.0	1.8	1.5	5	0.6
Tetrachloroethene	0.20 J/	0.50 U	0.50 U	5	0.5
Trichloroethene	0.50 U/	0.50 U	0.50 U	5	0.5
Vinyl chloride	0.50 U/	0.50 U	0.50 U	2	0.5
4-Methyl-2-pentanone	2.5 U/	2.5 U	2.5 U	15	3
bis (2-Chloroethyl) ether	ND	NS	NS	9.6	9.6
bis(2-Ethylhexyl) - phthalate	ND	NS	NS	6	6
4 - Methylphenol	ND	NS	NS	34	10
Isophorone	ND	NS	NS	50	10
Pentachlorophenol	ND	NS	NS	1	1
PCB/Aroclor-1016	ND	NS	NS	0.00056 (w/DL = 0.1 to 0.9)	0.5
PCB/Aroclor-1221	ND	NS	NS	0.00056 (w/DL = 0.1 to 0.9)	0.92*
PCB/Aroclor-1232	ND	NS	NS	0.00056 (w/DL = 0.1 to 0.9)	0.5
PCB/Aroclor-1242	ND	NS	NS	0.00056 (w/DL = 0.1 to 0.9)	0.5
PCB/Aroclor-1248	ND	NS	NS	0.00056 (w/DL = 0.1 to 0.9)	0.5
PCB/Aroclor-1254	ND	NS	NS	0.00056 (w/DL = 0.1 to 0.9)	0.5
PCB/Aroclor-1260	ND	NS	NS	0.00056 (w/DL = 0.1 to 0.9)	0.5

Notes:

Bolded result indicates a exceedence of the discharge limit
pH data is expressed in S.U.
Metals, VOC, SVOC and PCB data is expressed in ug/L
ND = Not detected
NS = This analyte was not sampled or analyzed for
NE = No effluent limit established.
DL = Detection limit
* = Approved SW-846 method is incapable of achieving effluent limit.

DRAFT VERSION

For Informational Purposes Only

Not all data presented here has been validated
Notes and suffix definitions have not been updated.

Suffix Definitions:

/J = Data qualifier added by laboratory
/_ = Data qualifier added by data validator
J = Result is estimated
B = Compound is also detected in the blank
UJ = Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value
JB = Result is detected below the reporting limit and is an estimated concentration.
The compound is also detected in the method blank resulting in a potential high bias
UB = Compound or analyte is not detected at or above the indicated concentration due to blank contamination
UBJ = Analyte is not detected at or above the indicated concentration due to blank contamination, however the calibration was out of range. Therefore the concentration is estimated.

Figure 2
Off-Site Area Water Level Status
Groundwater Monitoring
ACS NPL Site
Griffith, Indiana

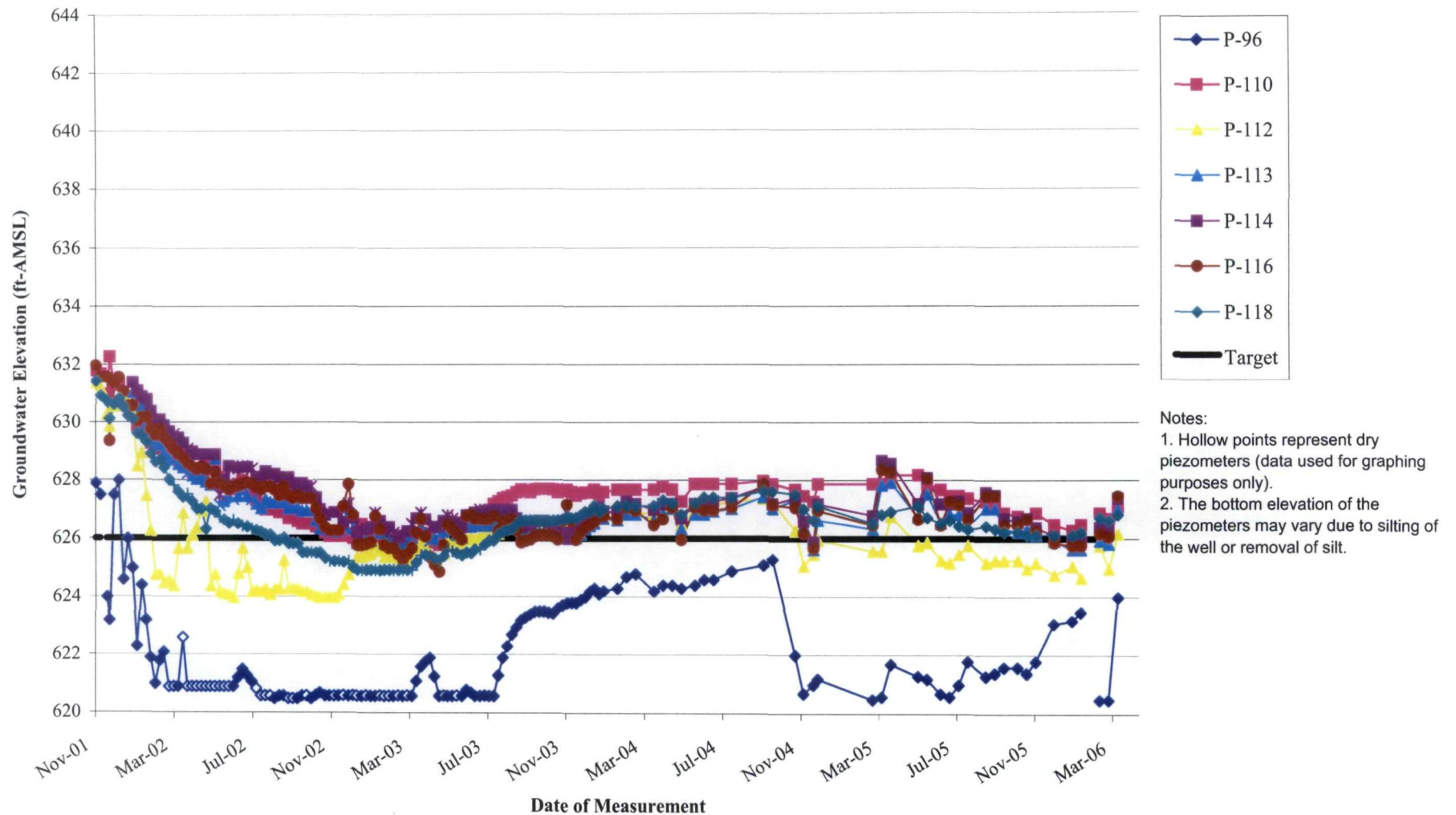


Figure 1
SBPA Water Level Status
ACS NPL Site
Griffith, Indiana

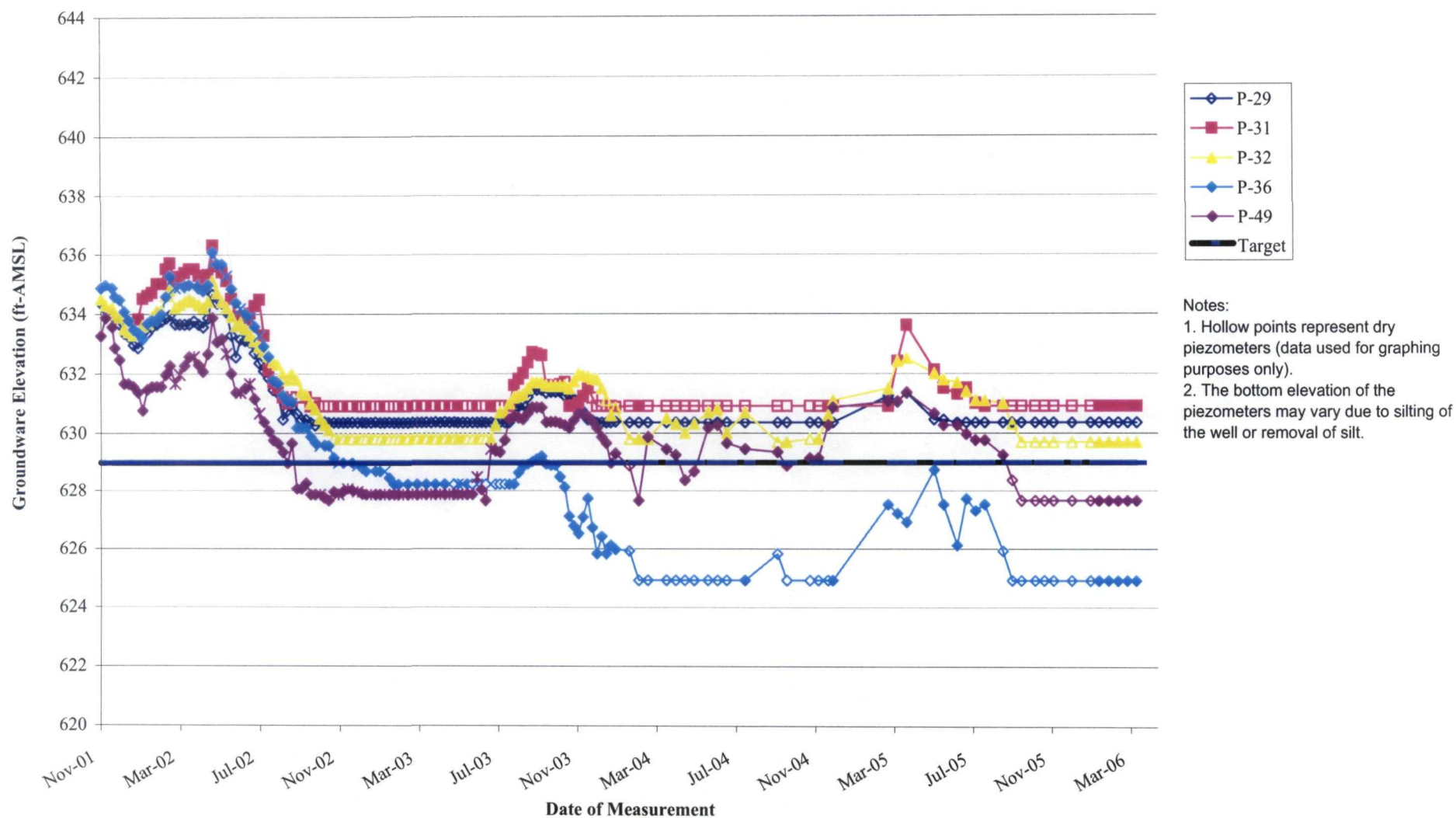


Table 3
SBPA and Off-Site ISVE System Results
for Method TO-14 (VOCs) - February 2006
American Chemical Service
Griffith, Indiana

Compounds	Units	Sampled 2/17/2006			
		SBPA ISVE		Off-Site ISVE	
1,1,1-Trichloroethane	ppbv	26,000		22,000	
1,1,2,2-Tetrachloroethane	ppbv	ND	U	ND	U
1,1,2-Trichloroethane	ppbv	ND	U	120	J/J
1,1-Dichloroethane	ppbv	2,600		2,400	
1,1-Dichloroethene	ppbv	100	J/J	ND	U
1,2-Dichloroethane	ppbv	290		640	
1,2-Dichloropropane	ppbv	380		170	J/J
2-Butanone (Methyl Ethyl Ketone)	ppbv	ND	U	8,200	
2-Hexanone	ppbv	ND	U	ND	U
4-Methyl-2-pentanone	ppbv	ND	U	4,800	
Acetone	ppbv	990		8,700	
Benzene	ppbv	6,000		12,000	
Bromodichloromethane	ppbv	ND	U	ND	U
Bromoform	ppbv	ND	U	ND	U
Bromomethane	ppbv	ND	U	ND	U
Carbon Disulfide	ppbv	310	J/J	160	J/J
Carbon Tetrachloride	ppbv	ND	U	ND	U
Chlorobenzene	ppbv	ND	U	ND	U
Chloroethane	ppbv	260		ND	U
Chloroform	ppbv	7,000		1,500	
Chloromethane	ppbv	ND	U	ND	U
cis-1,2-Dichloroethene	ppbv	18,000		2,400	
cis-1,3-Dichloropropene	ppbv	ND	U	ND	U
Dibromochloromethane	ppbv	ND	U	ND	U
Ethyl Benzene	ppbv	6,700		10,000	
m,p-Xylene	ppbv	37,000		41,000	
Methylene Chloride	ppbv	4,800		16,000	
o-Xylene	ppbv	23,000		16,000	
Styrene	ppbv	ND	U	670	
Tetrachloroethene	ppbv	37,000		16,000	
Toluene	ppbv	52,000		75,000	
trans-1,2-Dichloroethene	ppbv	ND	U	ND	U
trans-1,3-Dichloropropene	ppbv	ND	U/R	ND	U/R
Trichloroethene	ppbv	25,000		12,000	
Vinyl Chloride	ppbv	990		230	J/J
Total	ppbv	248,420		249,990	
Total	lb/hr	6.505		6.346	

Notes:

NC - Not calculated

ND - Non-detect

ppbv - parts per billion volume

lb/hr - pounds per hour

1/9/06 VOCs in lb/hr calculated based on Offsite: 1812 scfm, 60 degrees Fahrenheit (1/9/06)

On-site: 1551 scfm, 80 degrees Fahrenheit (1/9/06)

Qualifiers:

J - Result is estimated

U - below reported quantitation limit

_ / - Laboratory data qualifier

_ / - Data validation qualifier

Table 6
SBPA and Off-Site ISVE System Results
for Method TO-13 (SVOCs) - February 2006
American Chemical Service
Griffith, Indiana

Compounds	Units	Sampled 2/17/2006			
		SBPA ISVE		Off-Site ISVE	
1,2,4-Trichlorobenzene	µg	0.5	J	0.97	J
1,2-Dichlorobenzene	µg	50		29	
1,3-Dichlorobenzene	µg	3.9		0.94	J
1,4-Dichlorobenzene	µg	11		3.3	
2,4,5-Trichlorophenol	µg	ND	U	ND	U
2,4,6-Trichlorophenol	µg	ND	U	ND	U
2,4-Dichlorophenol	µg	ND	U	ND	U
2,4-Dimethylphenol	µg	ND	U	ND	U
2,4-Dinitrophenol	µg	ND	U	ND	U
2,4-Dinitrotoluene	µg	ND	U	ND	U
2,6-Dinitrotoluene	µg	ND	U	ND	U
2-Chloronaphthalene	µg	ND	U	ND	U
2-Chlorophenol	µg	ND	U	ND	U
2-Methylnaphthalene	µg	13		6.4	
2-Methylphenol (o-Cresol)	µg	ND	U	ND	U
2-Nitroaniline	µg	ND	U	ND	U
2-Nitrophenol	µg	ND	U	ND	U
3,3'-Dichlorobenzidine	µg	ND	U	ND	U
3-Nitroaniline	µg	ND	U	ND	U
4,6-Dinitro-2-methylphenol	µg	ND	U	ND	U
4-Bromophenyl-phenyl Ether	µg	ND	U	ND	U
4-Chloro-3-methylphenol	µg	ND	U	ND	U
4-Chloroaniline	µg	ND	U	ND	U
4-Chlorophenyl-phenyl Ether	µg	ND	U	ND	U
4-Methylphenol/3-Methylphenol	µg	ND	U	ND	U
4-Nitroaniline	µg	ND	U	ND	U
4-Nitrophenol	µg	ND	U	ND	U
Acenaphthene	µg	ND	U	ND	U
Acenaphthylene	µg	ND	U	ND	U
Anthracene	µg	ND	U	ND	U
Benzo(a)anthracene	µg	ND	U	ND	U
Benzo(a)pyrene	µg	ND	U	ND	U
Benzo(b)fluoranthene	µg	ND	U	ND	U
Benzo(g,h,i)perylene	µg	ND	U	ND	U
Benzo(k)fluoranthene	µg	ND	U	ND	U
bis(2-Chloroethoxy) Methane	µg	ND	U	ND	U
bis(2-Chloroethyl) Ether	µg	ND	U	ND	U
bis(2-Ethylhexyl)phthalate	µg	1.6	J	0.87	J
Butylbenzylphthalate	µg	3.8	J	ND	U
Chrysene	µg	ND	U	ND	U
Dibenz(a,h)anthracene	µg	ND	U	ND	U
Dibenzofuran	µg	ND	U	ND	U
Diethylphthalate	µg	ND	U	ND	U
Dimethylphthalate	µg	ND	U	ND	U
di-n-Butylphthalate	µg	ND	U	ND	U
Di-n-Octylphthalate	µg	ND	U	ND	U
Fluoranthene	µg	ND	U	ND	U
Fluorene	µg	ND	U	ND	U
Hexachlorobenzene	µg	ND	U	ND	U
Hexachlorobutadiene	µg	6		2.2	
Hexachlorocyclopentadiene	µg	ND	U	ND	U
Hexachloroethane	µg	ND	U	ND	U
Indeno(1,2,3-c,d)pyrene	µg	ND	U	ND	U
Isophorone	µg	1.5		18	
Naphthalene	µg	19		33	
Nitrobenzene	µg	ND	U	ND	U
N-Nitroso-di-n-propylamine	µg	ND	U	ND	U
N-Nitrosodiphenylamine	µg	ND	U	ND	U
Pentachlorophenol	µg	ND	U	ND	U
Phenanthrene	µg	ND	U	ND	U
Phenol	µg	ND	U	ND	U
Pyrene	µg	ND	U	ND	U
Total	µg	110.30		94.68	

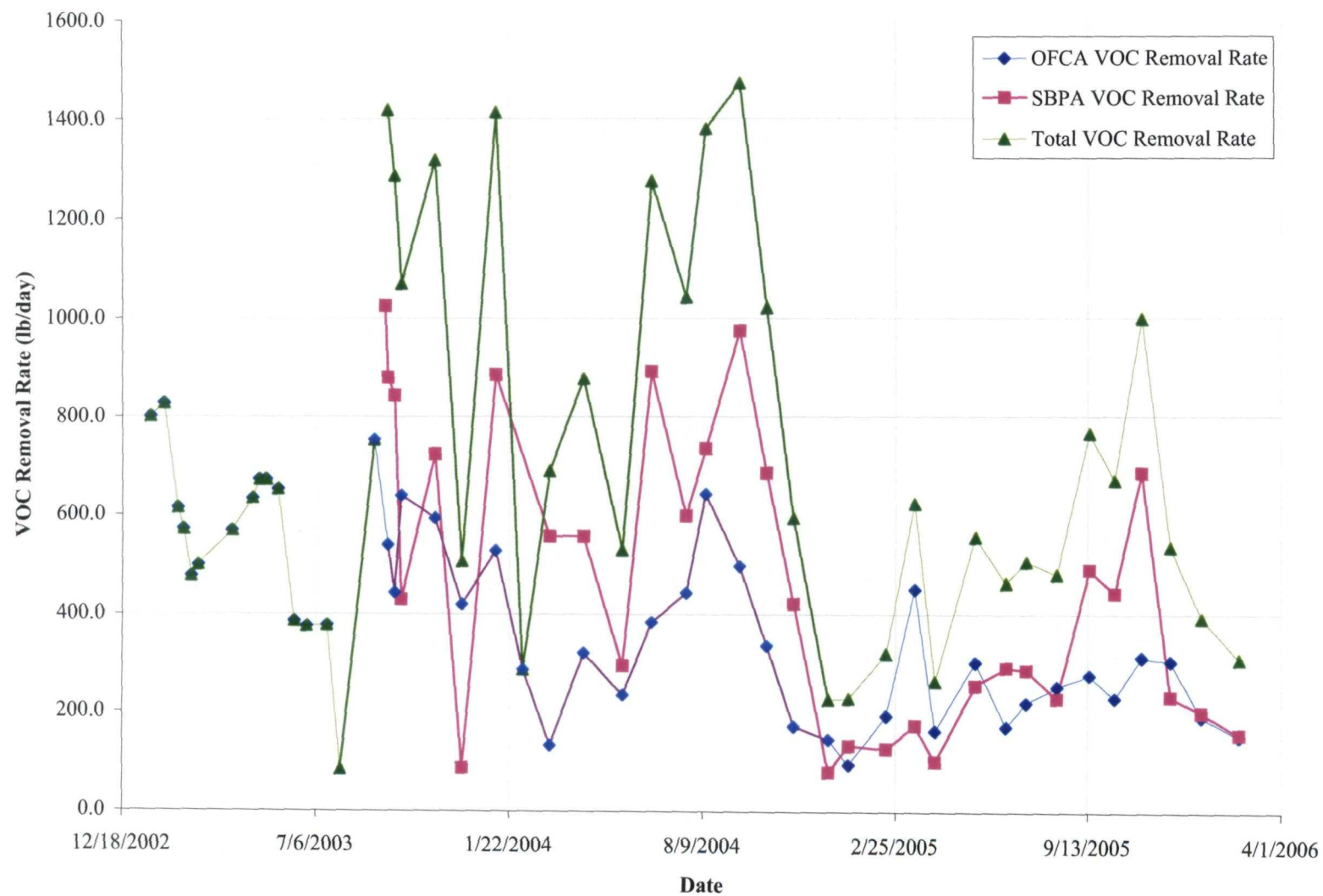
Notes:

µg - Microgram
 NC - Not calculated
 ND - Non-detect

Qualifiers:

J - Result is estimated
 U - below reported quantitation limit
 / - Laboratory data qualifier
 / - Data validation qualifier

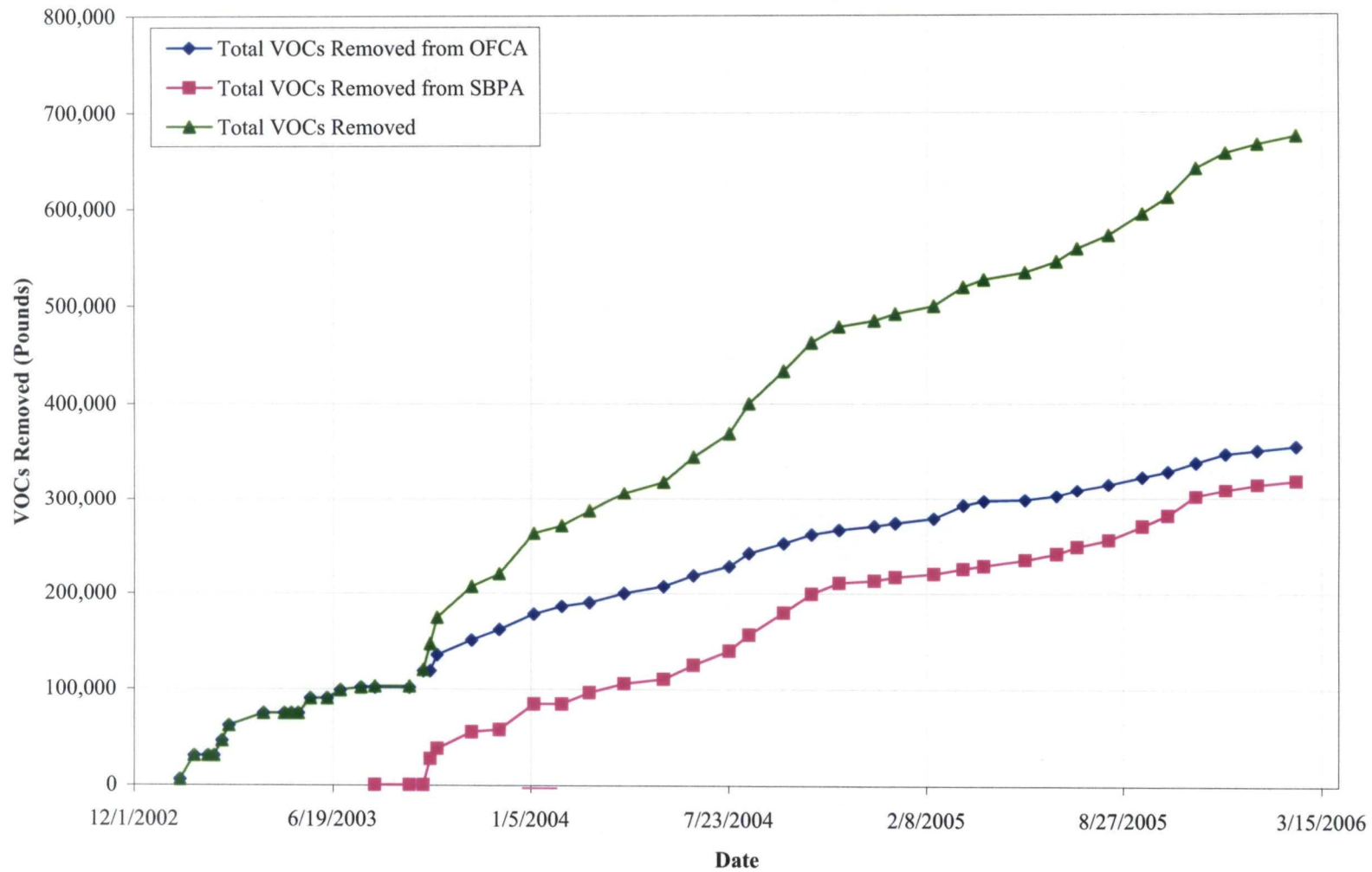
VOC Removal Rate American Chemical Services NPL Site, Griffith, IN



MBM/raa

J:\209\0603\0301\Remedial System Metrics\ISVE\ISVE Mass Removal.xls

Total VOCs Removed
American Chemical Services NPL Site, Griffith, IN



15 Mar 06
 0840 Arrive onsite - Cold
 Calm clear 28°F

Personnel Onsite

Lee Cross	MWH
Justin Finger	"
Chris Daly	"
Tim Kirkland	Husky
Larry Campbell	BVSP

- 0900 Disc. w/ Lee: GWTP shut down to clean (acid wash) influent piping to plant. Expect to be running again by noon
- 0910 Visit ONCA SBPA blower shed to observe Chris + Justin checking per formance of SBPA SVE system
- 0911 Photo 83-01 looking E inside SBPA blower shed at Chris + Justin observing pressure/vacuum in various SVE lines
- 0916 Photo 83-02 looking S at Justin inserting velocity gauge into SVE extraction piping
- 0917 Chris stated that MWH has

LM Campbell

(114)

switched to Group 2 injection wells (SVE-49, -51, -65, -71, -82)

0929 Photo 83-03 looking W at plumes from thormex 142

0935 Walked around SBPA cap to check condition of cap and seals at conc. pads.

0950 Photo 83-04 looking W into SBPA blower shed at MWH measuring contaminant loading of SVE influent stream.

Note MWH crew in APRs

1030 MWH completed performance monitoring of SBPA ISVE system

1031 Photo 83-05 looking E at MWH measuring water level in AS5

1038 Photo 83-06 looking down into AS4 as MWH measures water level.

1058 Photo 83-07 looking N at MWH measuring WL at conc 36

1100 MWH went to OFCA to monitor ISVE system there

1200 Lunch

Jim Campbell

(115)

1300 Return from lunch

1350 Photo 83-08 looking NE at leaking union on Thormex 2 Acushnet injection piping

1356 Photo 83-09 looking SW at Tim (Austgen) repairing leak ~~close~~ in equalization tank piping T102

1401 Photo 83-10 looking down into clogged 1/2" piping at equaliz. Tank

1425 Photo 83-11 looking E inside OFCA blower shed at MWH measuring VOCs conc in SVE piping

1428 Photo 83-12 looking N inside OFCA SVE Blower shed at MWH measuring VOCs w/ PID

1446 Photo 83-13 looking W at OFCA SVE 38. Vacuum cap is leaking air Also to looking

1448 Photo 83-14 looking E at resseeded area on E side of OFCA

1452 Photo 83-15 looking NW at resseeded area at N edge OFCA

1500 Photo 83-16 looking SE at new piping at equalization tank

1510 LV site ending

Jim Campbell

(116)

Tue 21 Mar 06

0910 Arrive onsite - overcast
Slight breeze Cold 28°F

Personnel Onsite

Lee Orosz	MWH
Mike Briston	Austgen
Dave Powers	MWH
Justin Finger	MWH
Larry Campbell	BUSPC

0915 Lee had reported last Friday that water level sensor failed in equalization tank. So he ran GWTP in "Hand" mode daily over weekend (rather than "Auto") New level switch installed Tues morning. GWTP now running in "Auto" mode. ISUE systems continued to operate all this time.

Lee also reported repairing leak in Austre feed line to thermox 2.

0920 Photo 83-17 looking S & up at repaired Austre feed line at thermox 2.

Jim Campbell

(117)

1130 Photo 83-18 looking S into roll-off box area where Lee cleaning out sump

1155 Photo 83-19 looking E at MWH checking GW parameters from well MW42

1210 Photo 83-20 looking down into bucket collecting purge water after stabilizing parameters & removing filter. Cool, turbidity increases.

1220 Photo 83-21 looking S at Dave collect GW sample from MW42

1230 Photo 83-22 looking NW at MWH removing pump from MW42 looking toward GWTP from Parthost St. NW.

1245 Photo 83-23 looking S into the

1345 - Laundry

1450 MWH set up to sample MW44

1520 Photo 83-23 looking S at developing MW44 for sampling

1600 Photo 83-24 looking S at MWH collecting sample from MW44

1605 Photo 83-25 look N at MWH storing sample

1615 Lr site today JM Campbell

(118)

Thurs 23 Mar 06

1330 Arrive onsite Partly
cloudy, cool, calm, ^{of}

Personnel Onsite

Lee Orosz	MWH
Justin Fryer	"
David Powers	"
Tim Kirkland	Austin
Mike Chenoweth	Microbac
Larry Campbell	BSR

1340 Disc w/ Lee - GWTP
+ ISE Systems all working ok
New blower is in at store. Will
be delivered to site next wk.

1415 Visit MWH GW Sampling
Team at lower aquifer wells
near LA pump Test

1430 Photo 83-26 looking N
at MWH collecting VOC sample
from LA12.

1442 Photo 83-27 looking down
into breach of Alconex where
well pump is being decomed.

1455 MWH started purging LA11.
Jm Campbell

(119)

1546 MWH began sampling LA11
After parameters stabilized
1600 Left Site for Day

(120)

Tue 28 Mar 06

0915 Arrive onsite - rain
earlier, Overcast, Cool 43°F

Personnel Onsite

Lee Orogz amwr

Justin Fonger "

Dave Nowak "

Tim Kirkland Auster

Larry Campbell BVSP

0925 Lee reported that the
Thermax 2 went down Fri
night because flexible hose
connecting Thermax 2 to heat
exchanger in Tank 2 ² broke.
Lee repaired the shut off valve
for heat exchanger line & resumed
ops of Thermax 2 on Saturday.
Heat exchanger line will be
repaired later. Use of heat
exchanger normally shut down
on 1 April till fall & colder
temperatures

Larry Campbell

(121)

0950 Observed MWH crew starting
to purge well MW 09R0953 Photo 84-01 looking ^{SE} at
MWH measuring water level prior to
purging in MW 09R1029 Photo 84-02 looking S at
used Control Trade on RIR Trade
brum ONCA & OFCA - previously
was spraying weed killer1030 Photo 84-03 ^{looking SE} MWH collecting
VOC sample from MW-09R1031 Photo 84-04 looking SE at MWH
removing pump from MW 09R1034 Photo 84-05 looking S at MWH
decoding pump & cable after
sampling MW 09R - sample 36 wells1040 Photo 84-06 looking NW at new
air pump housing for ME 102
Plan to replace today1042 Photo 84-07 looking E at new filter
replaced in Filter Press1044 Photo 84-08 looking NW at new close,
chair & computer in control office

1050 Left site for day

Larry Campbell



Site: American Chemical Service, Inc.
Proj. #: 44728 AES [46526 RAC]
Roll: 83 Photo #1
Date: 3-15-06 Time: 0911

Photographer: Larry Campbell

Description: Photo facing east inside SBPA blower shed showing Chris and Justin observing pressure/vacuum in various SVE lines.



Site: American Chemical Service, Inc.
Proj. #: 44728 AES [46526 RAC]

Roll: 83 Photo #2

Date: 3-15-06 Time: 0916

Photographer: Larry Campbell

Description: Photo facing south showing Justin inserting velocity gauge probe into SVE extraction piping line.



Site: American Chemical Service, Inc.
 Proj. #: 44728 AES [46526 RAC]
 Roll: 83 Photo #3
 Date: 3-15-06 Time: 0929
 Photographer: Larry Campbell
 Description: Photo facing west showing vapor plumes
 from thermox 1 and 2 at GWTP.

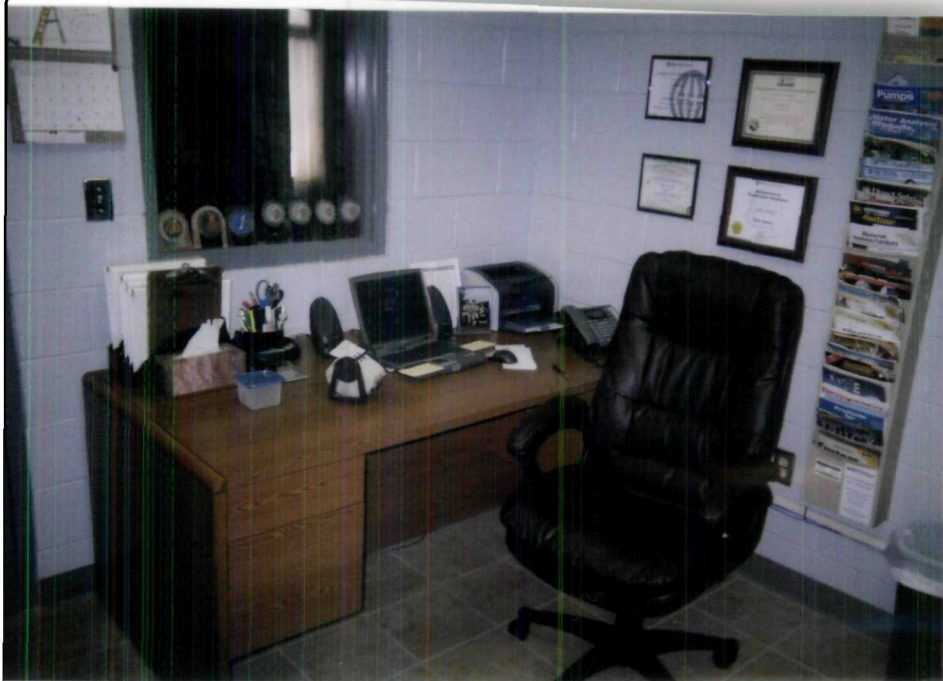
Site: American Chemical Service, Inc.
 Proj. #: 44728 AES [46526 RAC]
 Roll: 83 Photo #4
 Date: 3-15-06 Time: 0950
 Photographer: Larry Campbell
 Description: Photo facing west into SBPA blower shed
 showing MWH measuring contaminant
 loading of SVE influent stream. Note
 crew in air purifying respirators.



Site: American Chemical Service, Inc.
Proj. #: 44728 AES [46526 RAC]
Roll: 84 Photo #6
Date: 3-28-06 Time: 1040
Photographer: Larry Campbell
Description: Photo facing northwest showing new air pump for ME102. MWH plans to install this new pump today.



Site: American Chemical Service, Inc.
Proj. #: 44728 AES [46526 RAC]
Roll: 84 Photo #7
Date: 3-28-06 Time: 1042
Photographer: Larry Campbell
Description: Photo facing east showing new filters that were installed on the filter press at the GWTP.



Site: American Chemical Service, Inc.

Proj. #: 44728 AES [46526 RAC]

Roll: 84 Photo #8

Date: 3-28-06 Time: 1044

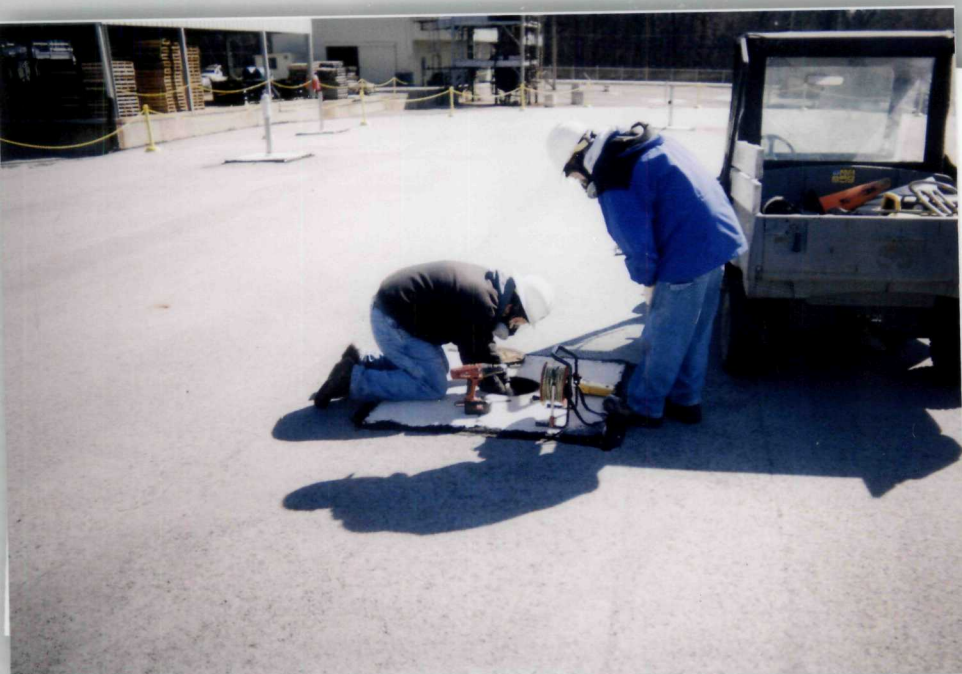
Photographer: Larry Campbell

Description: Photo facing northwest showing new desk,
chair and laptop computer in GWTP
control office.

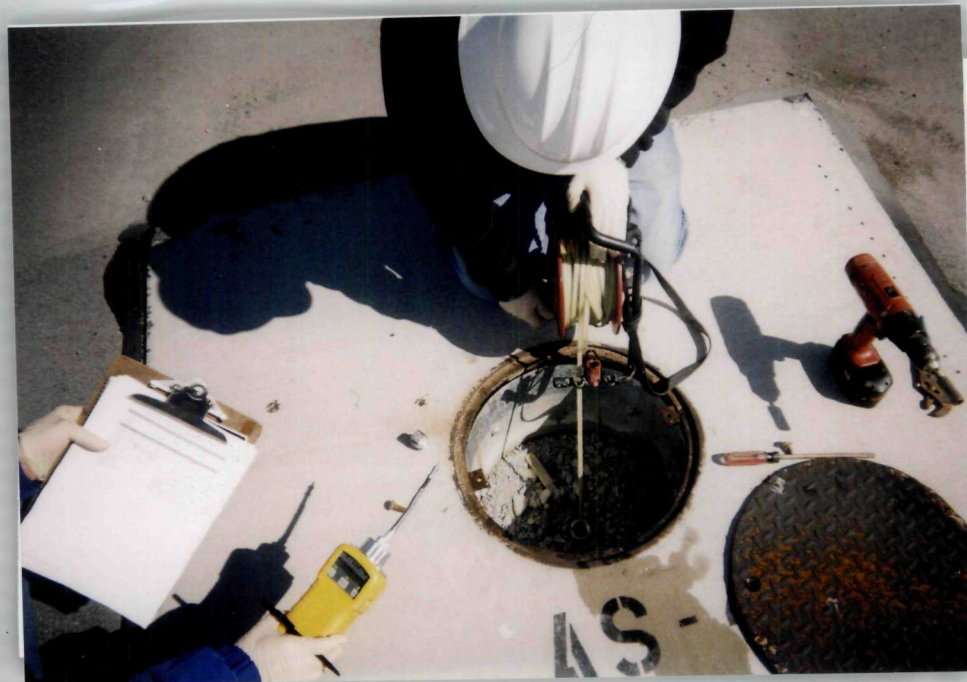
856

(No. 209)

042 NO. 209 1 2124 516100



Site: American Chemical Service, Inc.
Proj. #: 44728 AES [46526 RAC]
Roll: 83 Photo #5
Date: 3-15-06 Time: 1031
Photographer: Larry Campbell
Description: Photo facing east showing MWH crew measuring water level in AS-5.



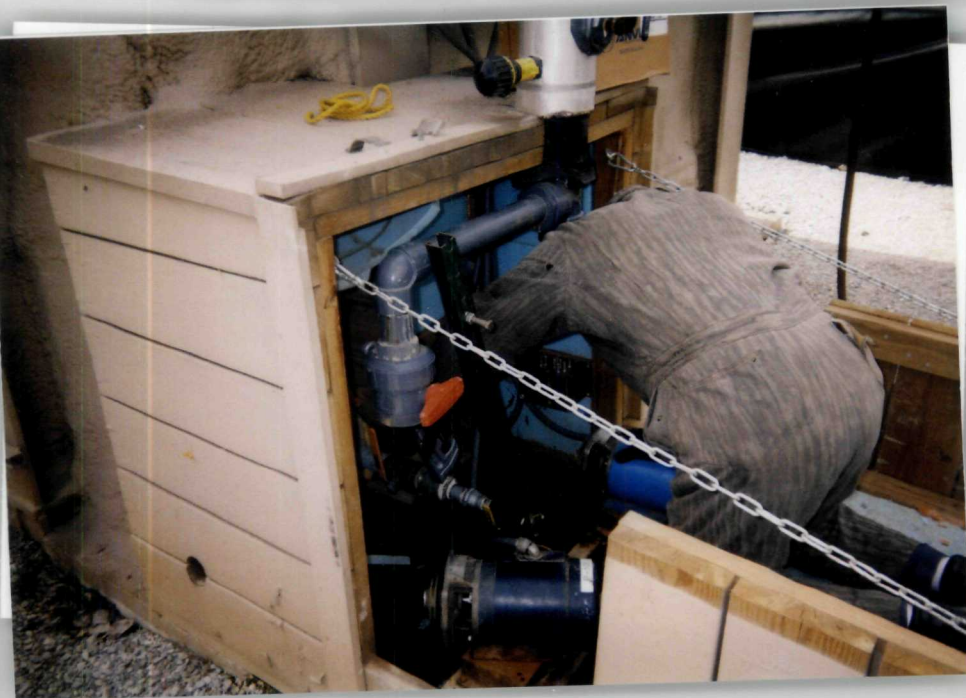
Site: American Chemical Service, Inc.
Proj. #: 44728 AES [46526 RAC]
Roll: 83 Photo #6
Date: 3-15-06 Time: 1038
Photographer: Larry Campbell
Description: Photo facing down into AS-4 showing MWH measuring water level and checking for VOCs with PID.



Site: American Chemical Service, Inc.
 Proj. #: 44728 AES [46526 RAC]
 Roll: 83 Photo #7
 Date: 3-15-06 Time: 1058
 Photographer: Larry Campbell
 Description: Photo facing north showing MWH
 measuring water level in SVE-36.



Site: American Chemical Service, Inc.
 Proj. #: 44728 AES [46526 RAC]
 Roll: 83 Photo #8
 Date: 3-15-06 Time: 1350
 Photographer: Larry Campbell
 Description: Photo facing northeast showing leaking
 union (arrow) on thermox 2 caustic injection
 piping.



Site: American Chemical Service, Inc.
Proj. #: 44728 AES [46526 RAC]
Roll: 83 Photo #9
Date: 3-15-06 Time: 1356
Photographer: Larry Campbell
Description: Photo facing southwest showing Austgen
repairing clog in equalization tank T-102
influent piping.



Site: American Chemical Service, Inc.
Proj. #: 44728 AES [46526 RAC]
Roll: 83 Photo #10
Date: 3-15-06 Time: 1401
Photographer: Larry Campbell
Description: Photo facing down showing clogged 1.5-
inch-diameter piping removed from
equalization tank T-102 influent.



Site: American Chemical Service, Inc.
 Proj. #: 44728 AES [46526 RAC]
 Roll: 83 Photo #11
 Date: 3-15-06 Time: 1425
 Photographer: Larry Campbell
 Description: Photo facing east inside OFCA blower shed
 showing MWH measuring VOC
 concentration in OFCA SVE lines. Note
 APRs.



Site: American Chemical Service, Inc.
 Proj. #: 44728 AES [46526 RAC]
 Roll: 83 Photo #12
 Date: 3-15-06 Time: 1428
 Photographer: Larry Campbell
 Description: Photo facing north into OFCA blower shed
 showing MWH measuring VOCs with PID.



Site: American Chemical Service, Inc.
Proj. #: 44728 AES [46526 RAC]
Roll: 83 Photo #13
Date: 3-15-06 Time: 1446
Photographer: Larry Campbell
Description: Photo facing west showing OFCA SVE38.
Vacuum cap is leaking air. Same condition
observed at SVE40.



Site: American Chemical Service, Inc.
Proj. #: 44728 AES [46526 RAC]
Roll: 83 Photo #14
Date: 3-15-06 Time: 1448
Photographer: Larry Campbell
Description: Photo facing east showing reseeded area on
east side of OFCA where trees cut from
OFCA had been staged. Area was
reseeded later than adjacent areas.



Site: American Chemical Service, Inc.

Proj. #: 44728 AES [46526 RAC]

Roll: 83 Photo #15

Date: 3-15-06 Time: 1452

Photographer: Larry Campbell

Description: Photo facing northwest showing reseeded area on north side of OFCA where trees cut from OFCA had been staged. Area was reseeded later than adjacent areas.



Site: American Chemical Service, Inc.

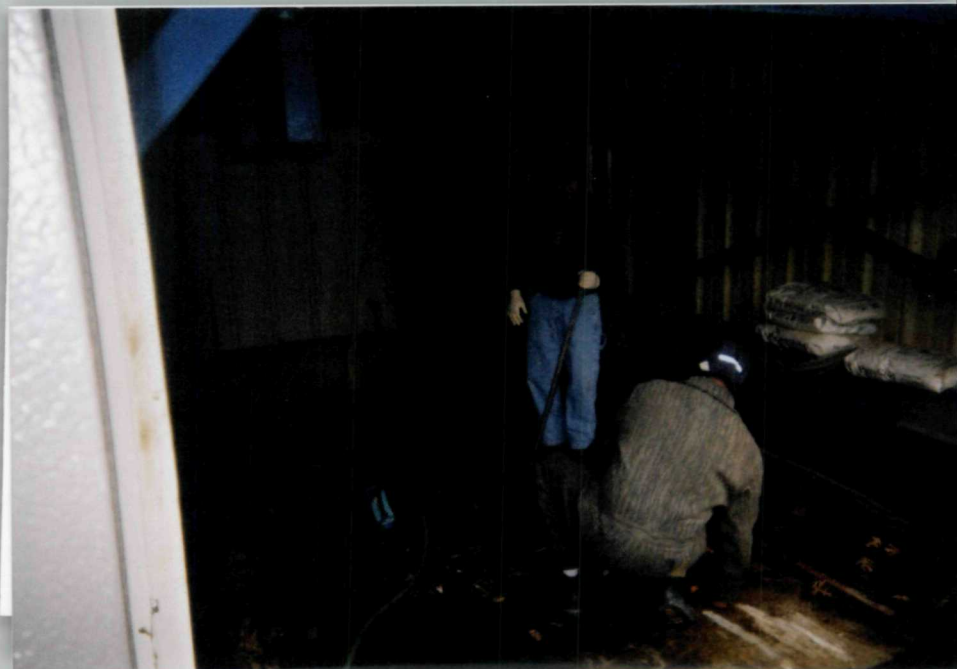
Proj. #: 44728 AES [46526 RAC]

Roll: 83 Photo #16

Date: 3-15-06 Time: 1500

Photographer: Larry Campbell

Description: Photo facing southeast showing new influent pipes installed at equalization tank T-102.



Site: American Chemical Service, Inc.
Proj. #: 44728 AES [46526 RAC]
Roll: 83 Photo #17
Date: 3-21-06 Time: 0920
Photographer: Larry Campbell
Description: Photo facing south and up showing repaired
caustic line on thermox 2

Compare with Roll 83 Photo #08

Site: American Chemical Service, Inc.
Proj. #: 44728 AES [46526 RAC]
Roll: 83 Photo #18
Date: 3-21-06 Time: 1130
Photographer: Larry Campbell
Description: Photo facing south showing MWH cleaning
out sump in sludge rolloff container area at
GWTP.



Site: American Chemical Service, Inc.
 Proj. #: 44728 AES [46526 RAC]
 Roll: 83 Photo #19
 Date: 3-21-06 Time: 1155
 Photographer: Larry Campbell
 Description: Photo facing east showing MWH checking
 groundwater parameters from well MW42.

Site: American Chemical Service, Inc.
 Proj. #: 44728 AES [46526 RAC]
 Roll: 83 Photo #20
 Date: 3-21-06 Time: 1212
 Photographer: Larry Campbell
 Description: Photo facing down into bucket collecting
 clear purge water. After parameters
 stabilized and Horeba cell removed,
 turbidity increased to redish color.



Site: American Chemical Service, Inc.
Proj. #: 44728 AES [46526 RAC]
Roll: 83 Photo #21
Date: 3-21-06 Time: 1220
Photographer: Larry Campbell
Description: Photo facing south showing MWH
collecting groundwater sample from MW42.



Site: American Chemical Service, Inc.
Proj. #: 44728 AES [46526 RAC]
Roll: 83 Photo #22
Date: 3-21-06 Time: 1230
Photographer: Larry Campbell
Description: Photo facing northwest showing MWH
removing pump from MW42. Looking
toward GWTP from farthest southeast
monitoring well.



Site: American Chemical Service, Inc.
 Proj. #: 44728 AES [46526 RAC]
 Roll: 83 Photo #23
 Date: 3-21-06 Time: 1520
 Photographer: Larry Campbell
 Description: Photo facing south showing MWH purging
 MW44 before sampling.



Site: American Chemical Service, Inc.
 Proj. #: 44728 AES [46526 RAC]
 Roll: 83 Photo #24
 Date: 3-21-06 Time: 1600
 Photographer: Larry Campbell
 Description: Photo facing south showing MWH
 collecting groundwater sample from MW44.



Site: American Chemical Service, Inc.
Proj. #: 44728 AES [46526 RAC]
Roll: 83 Photo #25
Date: 3-21-06 Time: 1605
Photographer: Larry Campbell
Description: Photo facing north showing MWH storing collected samples in cooler.



Site: American Chemical Service, Inc.
Proj. #: 44728 AES [46526 RAC]
Roll: 83 Photo #26
Date: 3-23-06 Time: 1430
Photographer: Larry Campbell
Description: Photo facing north showing MWH collecting VOC sample from lower aquifer well LA12 near northern property boundary.



Site: American Chemical Service, Inc.
 Proj. #: 44728 AES [46526 RAC]
 Roll: 83 Photo #27
 Date: 3-23-06 Time: 1442
 Photographer: Larry Campbell
 Description: Photo facing down into bucket of Alconox
 where peristaltic pump is being
 decontaminated.

Site: American Chemical Service, Inc.
 Proj. #: 44728 AES [46526 RAC]
 Roll: 84 Photo #1
 Date: 3-28-06 Time: 0953
 Photographer: Larry Campbell
 Description: Photo facing southeast showing MWH
 measuring water level prior to purging water
 from MW09R.



Site: American Chemical Service, Inc.

Proj. #: 44728 AES [46526 RAC]

Roll: 84 Photo #2

Date: 3-28-06 Time: 1029

Photographer: Larry Campbell

Description: Photo facing south showing weed control truck running on railroad tracks between ONCA and OFCA, spraying herbicide for weed control.

Site: American Chemical Service, Inc.

Proj. #: 44728 AES [46526 RAC]

Roll: 84 Photo #3

Date: 3-28-06 Time: 1030

Photographer: Larry Campbell

Description: Photo facing southeast showing MWH collecting VOC sample from MW09R.



Site: American Chemical Service, Inc.
 Proj. #: 44728 AES [46526 RAC]
 Roll: 84 Photo #4
 Date: 3-28-06 Time: 1031
 Photographer: Larry Campbell
 Description: Photo facing southeast showing MWH
 removing pump from MW09R.



Site: American Chemical Service, Inc.
 Proj. #: 44728 AES [46526 RAC]
 Roll: 84 Photo #5
 Date: 3-28-06 Time: 1034
 Photographer: Larry Campbell
 Description: Photo facing south showing MWH
 decontaminating pump and cable after
 sampling MW09R. This is the last of 36
 wells sampled during this sampling event.